INDEX

Acid— Page
complete, effect on ash content of spinach.. 15–25
hydrocyanic, in *Andropogon sorghum*.... 175–181
hypochlorous, effect on germination of Irish potatoes..... 298
phosphate, effect on—
ash content of spinach..... 15–25
nitrification of acid soils..... 27–42
prussic, in *Andropogon sorghum*..... 175–181
Acid soils, effect of lime, fertilizer, crops, and manure on nitrification..... 27–42
Acidity in wheat, determination with the hydrogen electrode..... 1–13
Actinomycetes in manured soil..... 318–322
Adelocera sp., natural enemy of *Chrysobothris tranquebarica*..... 161
Aerobic bacteria, effect of lime, fertilizer, and crops on number in acid soils..... 33–42
Age—
effect on butter-fat content of cow's milk.. 85–102
of host, effect on morphology of urediniospores of *Puccinia graminis*..... 73–77
of rust fungus, effect on morphology of urediniospores of *Puccinia graminis*..... 74–77
Agropyron—
smithii, host of *Puccinia graminis tritici*.... 52–77
tenerum, host of *Puccinia graminis tritici*... 52–77
Agrostis alba, host of *Puccinia graminis agrostis* 63–77
Alfalfa. See *Medicago sativa*.
Alopecurus pratensis, host of—
Puccinia graminis agrostis..... 63–77
Puccinia graminis avenae..... 58–77
Alway, Frederick J., and Neller, Joseph R. (paper): A Field Study of the Influence of Organic Matter upon the Water-Holding Capacity of a Silt-Loam Soil..... 263–278
Amaranthus retroflexus, host of *Pegomyia calyptrata*..... 230
Amino nitrogen in wheat, method for determining..... 7–13
Ammonification of Manure in Soil (paper).. 313–350
Ammonium—
nitrate, effect on nitrification of acid soils.. 27–42
phosphate, effect on nitrification of acid soils..... 27–42
sulphate, effect on nitrification of acid soils. 27–42
Anaerobic bacteria, effect of lime, fertilizer, and crops on number in acid soils..... 33–42
Andropogon sorghum, cyanogenesis..... 175–181
Anemia, relation to Ascaris infection..... 253–258
Angular-leafspot. See *Bacterium angulatum*.
Angular-Leafspot of Tobacco, an Undescribed Bacterial Disease (paper)..... 219–228
Anthomyids, leaf-miners on dock..... 239–244
Apple-Scald (paper)..... 195–217
Apple-scald—
cause..... 216
effect of—
carbon dioxid..... 202–203
delayed storage..... 213–214
gas absorbents..... 214–216

Apple-scald—Continued.
effect of—Continued. Page
humidity..... 200–201
intermittent aeration..... 206–209
oxygen..... 203–204
temperature..... 199–200
ventilation..... 205–206, 212–213
Ascaris—
conocephala, action in intestines..... 256
lumbricoides, blood-destroying substance in..... 253–258
Ash Absorption by Spinach from Concentrated Soil Solutions (paper)..... 15–25
Ash in corn grown with barium and strontium compounds..... 192
Atanycolus—
labena, natural enemy of *Chrysobothris tranquebarica*..... 161
rugosiventris, natural enemy of *Chrysobothris tranquebarica*..... 161
Atriplex patula, host of *Pegomyia calyptrata*.. 230
Australian pine. See *Casuarina equisetifolia*.
Avena sativa—
host of *Puccinia graminis*..... 43–77
tolerance of barium and strontium compounds..... 185–187
Bacillus—
caudatus. See *Pseudomonas caudatus*.
cereus, growth in sterilized manured soil.. 322–325
fluorescens—
liquefaciens. See *Pseudomonas fluorescens*.
liquefaciens minutissimus. See *Pseudomonas fluorescens*.
nonliquefaciens. See *Pseudomonas putida*.
putidus. See *Pseudomonas putida*.
maculicola, cause of tobacco whitespot..... 224
megatherium, relation to ammonification of soil..... 315
mycoides, relation to ammonification of soils 315
pyocyaneum. See *Pseudomonas fluorescens*.
subtilis, relation to ammonification of soils. 315
vulgatus, relation to ammonification of soils. 315
Bacteria—
nitrogen-fixing, effect of salts..... 107–135
number of fluorescent in soil..... 337–338
spore-forming and non-spore-forming in freshly manured soil..... 318–322
Bacterial contents of acid soils as affected by lime, fertilizer, crops, and moisture..... 27–42
Bacterium—
angulatum, n. sp.—
cultural characters..... 226–227
description of—
organism..... 226–227
spots..... 221–222
inoculation experiments..... 222–224
resemblance to—
blackrust..... 224
wildfire..... 224
whitespot..... 224
temperature relations..... 226

Bacterium—Continued. Page
denitrofluorescens, nonliquefying denitrifier 335, 338
pseudozoogloeae, cause of tobacco blackrust. 224
pyocyaneum, identical with *Bacterium fluorescens* 334
termo, denitrifier 335
tobacum, cause of tobacco wildfire 224–225
Barium—
carbonate, effect on plant growth 183–194
chlorid, effect on plant growth 183–194
compounds, effect on plant growth 183–194
nitrate, effect on plant growth 183–194
sulphate—
effect on plant growth 183–194
in corn grown with barium and strontium compounds 193
Barley. See *Hordeum* spp.
Basic complete mixture, effect on ash content of spinach 15–25
Basic slag, effect on ash content of spinach .. 15–25
Beet. See *Beta vulgaris*.
Beta vulgaris—
host of *Pegomyia calyptrata* 230
var. *cicla*, host of *Pegomyia calyptrata* 230
Biologic forms of *Puccinia graminis* 103–105
Black, Otis F., et al. (paper): Ash Absorption by Spinach from Concentrated Soil Solutions 15–25
Blood-Destroying Substance in *Ascaris lumbricoides*, A (paper) 253–258
Blood, dried, effect on nitric nitrogen in soil. 125–135
Bordeaux mixture, effect on germination of Irish potatoes 298
Bright, J. W., and Conn, H. J. (paper): Ammonification of Manure in Soil 313–350
Bromus tectorum, host of *Puccinia graminis avenae* 58–77
Brooks, Charles, Cooley, J. S., and Fisher, D. F. (paper): Apple-Scald 195–217
Bruchophagus funebris, pest on *Medicago sativa* and *Trifolium pratense* 165–174
Buckner, G. Davis, Nollau, E. H., Wilkins, R. H., and Kastle, Joseph H. (paper): Effect of Certain Grain Rations on the Growth of the White Leghorn Chick 305–312
Butter fat, variation in cow's milk 80–102
Calcium—
carbonate—
effect on—
ash content of spinach 15–25
nitric nitrogen in soil 114–135
nitrification of acid soils 27–42
in spinach 17–25
chlorid, effect on nitric nitrogen in soil .. 114–135
nitrate, effect on nitric nitrogen in soil ... 114–135
sulphate, effect on nitric nitrogen in soil. 114–135
Calcium-magnesium ratio in ash of spinach .. 24–25
Carbon dioxid, effect on apple-scald 202–203
Carbon-dioxid-surviving bacteria in acid soils. 27–42
Carbonate—
barium, effect on plant growth 183–194
calcium—
effect on—
ash content of spinach 15–25
nitric nitrogen in soil 114–135
nitrification of acid soils 27–42
in spinach 17–25
Carbonate—Continued. Page
ferric, effect on nitric nitrogen in soil 118–135
lithum, effect on germination of Irish potatoes 298
manganous, effect on nitric nitrogen in soil .116–135
of magnesium, effect on nitric nitrogen in soil 115–135
sodium, effect on nitric nitrogen in soil ... 110–135
strontium, effect on growth of wheat 190–191
Carter, E. G., et al. (paper): Influence of Salts on the Nitric-Nitrogen Accumulation in the Soil 107–135
Casuarina equisetifolia, host of *Chrysobothris tranquebarica* 155–164
Cercospora nicotianae, cause of frogeye in tobacco 219–220
Charcoal, effect on germination of Irish potatoes 298
Chard, Swiss. See *Beta vulgaris* var *cicla*.
Chenopodium album, host of *Pegomyia calyptrata* 230
Chicks, White Leghorn, effect of grain rations on growth 305–312
Chlorid—
barium, effect on plant growth 183–194
calcium, effect on nitric nitrogen in soil .. 114–135
ferric, effect on nitric nitrogen in soil 118–135
magnesium, effect on nitric nitrogen in soil 115–135
manganous, effect on nitric nitrogen in soil 116–135
mercuric, effect on germination of Irish potatoes 298
potassium—
effect on nitric nitrogen in soil 112–135
in spinach 17–25
sodium—
effect on—
ash content of spinach 15–25
nitric nitrogen in soil 110–133
in spinach 17–25
Chlorin, effect on nitric nitrogen in soil 121
Chrysobothris tranquebarica—
adult 157–158
control 161–163
egg 158
natural enemies 161
larva 158–160
parasite of *Casuarina equisetifolia* 155–164
pupa 160
seasonal history 156–157, 160–161
Chrysolite, solubility of lime, magnesia, and potash in 259–261
Clover, effect on nitrification of acid soil 27–42
Colaptes auratus, natural enemy of *Chrysobothris tranquebarica* 161
Complete acid in spinach 18–25
Conn, H. J., and Bright, J. W. (paper): Ammonification of Manure in Soil 313–350
Conner, S. D., and Noyes, H. A. (paper): Nitrates, Nitrification, and Bacterial Contents of Five Typical Acid Soils as Affected by Lime, Fertilizer, Crops, and Moisture .. 27–42
Cooley, J. S., et al. (paper): Apple-Scald ... 195–217
Corn. See *Zea mays*.
Cowpeas. See *Vigna sinensis*.
Crops, effect on nitrification of acid soils 27–42
Cyanogensis in Andropogon sorghum (paper). 175–181

Page

Dacnusa scaptomyzae, parasite of *Pegomyia calyptrata* ... 237-238
Dactylis glomerata, host of *Puccinia graminis avenae* ... 58-77
Determination of Acidity and Titrable Nitrogen in Wheat with the Hydrogen Electrode (paper) ... 1-13
Dibothriocephalus latus, toxity ... 355
Dock. See *Rumex crispus*.
Dowell, C. T. (paper): Cyanogensis in Andropogon sorghum ... 175-181
Drouth, effect on morphology of *Puccinia graminis* ... 44, 70-71
Durum wheat. See *Triticum durum*.
Ecological factors, effect on morphology of urediniospores of *Puccinia graminis* ... 43-77
Effect of Certain Compounds of Barium and Strontium on the Growth of Plants (paper) ... 183-194
Effect of Certain Ecological Factors on the Morphology of the Urediniospores of Puccinia graminis (paper) ... 43-77
Effect of Certain Grain Rations on the Growth of the White Leghorn Chick (paper) ... 305-312
Einkorn wheat. See *Triticum monococcum*.
Electrode, hydrogen, determination of acidity and titrable nitrogen in wheat ... 1-13
Elymus—
canadensis, host of *Puccinia graminis secalis* ... 56-77
condensatus host of *Puccinia graminis tritici-compacti* ... 54-77
glaucus, host of *Puccinia graminis tritici-compacti* ... 54-77
robustus, host of *Puccinia graminis secalis* ... 56-77
virginicus, host of *Puccinia graminis secalis* ... 56-77
Emmer wheat. See *Triticum dicoccum*.
Epidote, solubility of lime, magnesia, and potash in ... 259-261
Euchlaena mexicana, host of *Physoderma zeae-maydis* ... 142
Eutelus bruchophagi—
adult ... 171-172
hibernation ... 172
larva ... 171
parasite of *Bruchophagus funebris* ... 171-172
pupa ... 171
Ferric—
carbonate, effect on nitric nitrogen in soil ... 118-135
chlorid, effect on nitric nitrogen in soil ... 118-135
nitrate, effect on nitric nitrogen in soil ... 118-135
oxid in corn grown with barium and strontium compounds ... 192
sulphate, effect on nitric nitrogen in soil ... 118-135
Fertilizer, effect on nitrification of acid soils ... 27-42
Field Study of the Influence of Organic Matter upon the Water-Holding Capacity of a Silt-Loam Soil, A (paper) ... 263-278
Fisher, D. F., et al. (paper): Apple-Scald ... 195-217
Flicker. See *Colaptes auratus*.
Flour, wheat, determination of acidity and titrable nitrogen ... 1-13
Fluorescent organisms, characteristics ... 338-342
"Frogeye," caused by *Cercospora nicotianae* ... 219-220
Fromme, F. D., and Murray, T. J. (paper): Angular-Leafspot of Tobacco, an Undescribed Bacterial Disease ... 219-228

Page

Frost, S. W. (paper): Two Species of Pegomyia Mining the Leaves of Dock ... 239-244
Fusarium-blight of potatoes—
causal fungus ... 286-287
control ... 297-298
description ... 280-281
inoculation experiments ... 281-283
mode of infection ... 284
resistance of host ... 295-296
seed-piece infection ... 284-286
soil conditions ... 296-297
Fusarium-Blight of Potatoes under Irrigation (paper) ... 279-303
Fusarium oxysporum—
cause of Fusarium-blight ... 279-303
effect on germination of Irish potatoes ... 298
Gardiner, R. F. (paper): Solubility of Lime, Magnesia, and Potash in Such Minerals as Epidote, Chrysolite, and Muscovite, Especially in Regard to Soil Relationships ... 259-261
Glucoside in *Andropogon sorghum* ... 175-181
Goldthorpe, H. C., et al. (paper): Influence of Salts on the Nitric-Nitrogen Accumulation in the Soil ... 107-135
Gowen, John W. (paper): Variations and Mode of Secretion of Milk Solids ... 79-102
Greaves, J. E., Carter, E. G., and Goldthorpe, H. C. (paper): Influence of Salts on the Nitric-Nitrogen Accumulation in the Soil ... 107-135
Hemolytic nature of fluid of Ascaris ... 253-258
Holcus lanatus, host of *Puccinia graminis agrostis* ... 63-77
Hordeum—
jubatum, host of *Puccinia graminis* ... 51-77
pusillum, host of *Puccinia graminis avenae* ... 58-77
spp., host of *Puccinia graminis* ... 43-77
vulgare, host of *Puccinia graminis tritici-compacti* ... 54-77
Humidity, effect on—
apple-scald ... 200-201
morphology of *Puccinia graminis* ... 70-77
Hydrocyanic acid. See Acid, hydrocyanic.
Hydrogen electrode, determination of acidity and titrable nitrogen in wheat ... 1-13
Hydrogen-ion concentration of wheat, method for determining ... 1-13
Hypochlorous acid. See Acid, hypochlorous.
Hystris patula, host of *Puccinia graminis secalis* ... 56-77
Influence of Foreign Pollen on the Development of Vanilla Fruits (paper) ... 245-252
Influence of Salts on the Nitric-Nitrogen Accumulation in the Soil (paper) ... 107-135
Injury to Casuarina Trees in Southern Florida by the Mangrove Borer (paper) ... 155-164
Irish potato. See *Solanum tuberosum*.
Iron salts, effect on nitric nitrogen in soil ... 118-135
Iron sulphate, effect on germination of Irish potatoes ... 298
Irrigation, effect on fusarium-blight of *Solanum tuberosum* ... 279-303
Kastle, Joseph H., et al. (paper): Effect of Certain Grain Rations on the Growth of the White Leghorn Chick ... 305-312

Page

Kelley, James W., et al. (paper): Ash Absorption by Spinach from Concentrated Soil Solutions 15–25
Leach, J. G., et al. (paper): New Biologic Forms of Puccinia graminis 103–105
Levine, M. N., and Stakman, E. C. (paper): Effect of Certain Ecological Factors on the Morphology of the Urediniospores of Puccinia graminis 43–77
Levine, M. N., et al. (paper): New Biologic Forms of Puccinia graminis 103–105
Life-History Observations on Four Recently Described Parasites of Bruchophagus funebris (paper) 165–174
Light, effect on morphology of *Puccinia graminis* 44, 71–72
Lime—
  effect on nitrification of acid soils 27–42
  in corn grown with barium and strontium compounds 192
  solubility in epidote, chrysolite, and muscovite 259–261
Liodontomerus—
  perplexus—
    adult 169
    hibernation 166
    larva 167–168
    oviposition 167
    parasite of *Bruchophagus funebris* 169–169
    pupa 168–169
  secundus—
    adult 170
    hibernation 170
    larva 170
    parasite of *Bruchophagus funebris* 169–170
    pupa 170
Lithum carbonate, effect on germination of Irish potatoes 298
Lolium temulentum, host of *Puccinia graminis avenae* 58–77
MacMillan, H. G. (paper): Fusarium-Blight of Potatoes under Irrigation 279–303
Magnesia—
  in corn grown with barium and strontium compounds 192
  solubility in epidote, chrysolite, and muscovite 259–261
Magnesium—
  carbonate, effect on nitric nitrogen in soil 115–135
  chlorid, effect on nitric nitrogen of salts .. 115–135
  nitrate, effect on nitric nitrogen in soil ... 115–135
  sulphate, effect on nitric nitrogen in soil . 115–135
Magnesium-calcium ratio in ash of spinach ... 24–25
Malus sylvestris, scald 195–217
Manganous—
  carbonate, effect on nitric nitrogen in soil 116–135
  chlorid, effect on nitric nitrogen in soil .. 116–135
  nitrate, effect on nitric nitrogen in soil ... 116–135
  sulphate, effect on nitric nitrogen in soil .. 116–135
Mangrove, red. See *Rhizophora mangle*.
McClelland, T. B. (paper): Influence of Foreign Pollen on the Development of Vanilla Fruits 245–252

Page

McHargue, J. S. (paper): Effect of Certain Compounds of Barium and Strontium on the Growth of Plants 183–194
Manure, effect on ash content of spinach 15–25
Medicago sativa, attacked by *Bruchophagus funebris* 165–174
Melanerpes erythrocephalus, natural enemy of *Chrysobothris tranquebarica* 161
Mercuric chlorid, effect on germination of Irish potatoes 298
Milk, cow's—
  diurnal variation constituents 92–102
  factors affecting composition 84–102
  solids, variation and mode of secretion ... 79–102
  variation of butter fat and solids-not-fat ... 80–102
Moisture—
  effect on—
    morphology of *Puccinia graminis* 44, 70–71
    nitrification of acid soils 27–42
  soil—
    at different levels 268–269
    effect of organic matter 271–277
    effect on productivity 274–277
Monas termo. See *Bacterium termo*.
Morphology of urediniospores of *Puccinia graminis* 43–77
Murray, T. J., and Fromme, F. D. (paper): Angular-Leafspot of Tobacco, an Undescribed Bacterial Disease 219–228
Muscovite, solubility of lime, magnesia, and potash in 259–261
Mustard oil, effect on germination of Irish potatoes 298
Nabis ferus, parasite *Pegomyia calyptrata* 238
Neller, Joseph R., and Alway, Frederick J. (paper): A Field Study of the Influence of Organic Matter upon the Water-Holding Capacity of a Silt-Loam Soil 263–278
New Biologic Forms of Puccinia graminis (paper) 103–105
Nicotiana tabacum, angular-leafspot 219–228
Nicotine sulphate, effect on germination of Irish potatoes 298
Nitrate—
  ammonium, effect on nitrification of acid soils 27–42
  barium, effect on plant growth 183–194
  calcium, effect of nitric nitrogen in soil ... 114–135
  ferric, effect on nitric nitrogen in soil 118–135
  magnesium, effect on nitric nitrogen in soil 115–135
  manganous, effect on nitric nitrogen in soil 116–135
  potassium, effect on nitric nitrogen in soil . 119–135
  sodium—
    effect on—
      ash content of spinach 15–25
      nitric nitrogen in soil 110–135
    in spinach 17–25
  strontium, effect on growth of winter wheat 188–189
Nitrates, Nitrification, and Bacterial Contents of Five Typical Acid Soils as Affected by Lime, Fertilizer, Crops, and Moisture (paper) 27–42

Page

Nitric nitrogen in soil, effect on salts..... 107-135
Nitrification of acid soils..... 27-42
Nitrogen—
amino, in wheat, method for determining.. 7-13
in plants grown with barium and strontium compounds..... 189, 191, 193
in wheat, determination with the hydrogen electrode..... 1-13
ratio to organic matter in surface soil.... 266-269
Nitrogen-fixing bacteria, effect of salts.... 107-135
Nollau, E. H., et al. (paper): Effect of Certain Rations on the Growth of the White Leghorn Chick..... 305-312
Nonglucoside in *Andropogon sorghum*..... 175-181
Noyes, H. A., and Conner, S. D. (paper): Nitrates, Nitrification, and Bacterial Contents of Five Typical Acid Soils as Affected by Lime, Fertilizer, Crops, and Moisture..... 27-42
Oats. See *Avena sativa*.
Oil, mustard, effect on germination of Irish potatoes..... 298
Onion juice, effect on germination of Irish potatoes..... 298
Opius quebecensis, parasite of *Pegomyia calyptrata*..... 237-238
Organic matter—
effect on water-holding capacity of silt-loam soil..... 263-278
ratio to nitrogen in surface soil..... 266-269
Oxid, ferric, in corn grown with barium and strontium compounds..... 192
Oxygen, effect on apple-scald..... 203-204
Oxyhemoglobin in fluid of Ascaris..... 253-258
Pegomyia—
affinis—
distribution..... 240
life history..... 240-243
hosts..... 240
leaf-miner on dock..... 229-244
calyptrata—
distribution..... 230
hosts..... 230
leaf-miner on dock..... 229-244
life history..... 230-237
natural enemies..... 237-238
hyoscyami, host of *Nabis ferus*..... 238
spp., leaf-miners on dock..... 229-244
vicina. See *Pegomyia affinis*.
Pentoxid, phosphorus, in corn grown with barium and strontium compounds..... 193
Phleum pratense, host of *Puccinia graminis avenae*..... 58-77
Phosphate—
acid—
effect on—
ash content of spinach..... 15-25
nitrification of acid soils..... 27-42
in spinach..... 18-25
ammonium, effect on nitrification of acid soils..... 27-42
Phosphorus—
effect on nitrification of acid soils..... 27-42
in plants grown with barium and strontium compounds..... 189, 191
in wheat extracts, method for determining. 10-13
pentoxid in corn grown with barium and strontium compounds..... 193

Page

Physoderma Disease of Corn (paper)..... 137-154
Physoderma zeae-maydis—
control..... 152-153
description of causal organism..... 144
dissemination..... 150-152
germination of sporangia..... 145-146
hosts..... 142
overwintering of sporangia..... 149
symptoms..... 142-143
Pine, Australian. See *Casuarina equisetifolia*.
Plant growth, effect of barium and strontium compounds..... 183-194
Pollen, foreign, influence on development of vanilla fruits..... 245-252
Potash—
in corn grown with barium and strontium compounds..... 192
solubility in epidote, chrysolite, and muscovite..... 259-261
Potash-silica ratio in ash of spinach..... 18-25
Potash-soda ratio in ash of spinach..... 23-25
Potassium—
carbonate, effect on nitric nitrogen in soil. 112-135
chlorid—
effect on nitric nitrogen in soil..... 112-135
in spinach..... 17-25
effect on nitrification of acid soils..... 27-42
in plants grown with barium and strontium compounds..... 189, 191
nitrate, effect on nitric nitrogen in soil... 112-135
sulphate, effect on—
ash content of silage..... 15-25
nitric nitrogen in soil..... 112-135
Potato, Irish. See *Solanum tuberosum*.
Potato-wilt of potatoes under irrigation.... 279-303
Protein—
in plants grown with barium and strontium compounds..... 189-191, 193
Prussic acid. See Acid, prussic.
Pseudomonas—
aeruginosa—
causing blue pus..... 334
denitrifier..... 335-337
caudatus—
action on milk..... 346
action on sugars and glycerin..... 344-345
ammonification of soil..... 329-332
chromogenesis..... 343-344
diastatic action on starch..... 346
growth in sterilized manured soil..... 322-325
liquefaction of gelatin..... 344
morphology..... 342-343
physiology..... 344
production of indol..... 346
reduction of nitrate..... 345
relation to oxygen..... 344
fluorescens—
action on milk..... 342
action on sugars and glycerin..... 339-340
ammonification of soil..... 329-332, 339
cultural characters..... 338-339
diastatic action on starch..... 341
growth in sterilized manured soil..... 322-325
liquefaction of gelatin..... 339
morphology..... 338
reduction of nitrate..... 340-341
relation to oxygen..... 339

Pseudomonas—Continued. Page
putida, nonliquefier ... 337
pyocyanea. See *Pseudomonas aeruginosa*.
Puccinia—
andropogonis, change of morphology with change of host ... 44–77
elliisiana, change of morphology with change of host ... 44–77
graminis—
morphology ... 43–77
new biologic forms ... 103–105
agrostis, morphology of urediniospores ... 48–77
avenae, morphology of urediniospores ... 46–77
phleipratensis, morphology of urediniospores ... 48–77
secalis, morphology of urediniospores ... 48–77
tritici, morphology of urediniospores ... 45–77
tritici-compacti, morphology of urediniospores ... 48–77
triticina, variation in biologic forms ... 105
Radio-active material, effect on tolerance of barium carbonate and strontium carbonate by wheat ... 187–188
Rations, cooked and uncooked, effect on White Leghorn chicks ... 306–309
Red clover. See *Trifolium pratense*.
Rhizophora mangle, host of *Chrysobothris tranquebarica* ... 155–164
Rumex—
acetosa, host of *Pegomyia calyptrata* ... 230
crispus, host of *Pegomyia* spp. ... 229–241
obtusifolius, host of *Pegomyia* spp. ... 229–244
Rye. See *Secale cereale*.
Salts—
effect on nitric nitrogen in soil ... 107–135
toxity to nitrifying organisms ... 129–135
Schwartz, Benjamin (paper): A Blood-Destroying Substance in Ascaris lumbricoides 253–258
Secale cereale, host of *Puccinia graminis* ... 43–77
Silica in corn grown with barium and strontium compounds ... 192
Silica-potash ratio in ash of spinach ... 22–25
Silt-loam soil, effect of organic matter on water-holding capacity ... 263–278
Slag, basic, effect on ash content of spinach ... 15–25
Snyder, Thomas E. (paper): Injury to Casuarina Trees in Southern Florida by the Mangrove Borer ... 155–164
Soda in corn grown with barium and strontium compounds ... 193
Soda-potash ratio in ash of spinach ... 23–25
Sodium—
carbonate, effect on nitric nitrogen in soil 110–135
chlorid—
effect on—
ash content of spinach ... 15–25
nitric nitrogen in soil ... 110–135
in spinach ... 17–25
nitrate—
effect on—
ash content of spinach ... 15–25
nitric nitrogen in soil ... 110–135
sodium content of spinach ... 15–25
in spinach ... 17–25
sulphate—
effect on—
ash content of spinach ... 15–25
nitric nitrogen in soil ... 110–135
in spinach ... 17–25
Soil— Page
acid, effect of lime, fertilizer, crops, and moisture on nitrification ... 27–42
effect of salts on nitric-nitrogen accumulation ... 107–135
freshly manured, relative numbers of non-spore-forming and spore-forming bacteria ... 318–322
silt-loam, effect on organic matter on water-holding capacity ... 263–278
Soil moisture, effect on morphology *Puccinia graminis* ... 71–77
Soil solutions, ash absorption of spinach from ... 15–25
Soja max, tolerance of barium and strontium compounds ... 193–194
Solanum tuberosum, fusarium-blight ... 279–303
Solubility of Lime, Magnesia, and Potash in Such Minerals as Epidote, Chrysolite, and Muscovite, Especially in Regard to Soil Relationships (paper) ... 259–261
Soybean. See *Soja max*.
Species, new ... 219–228
Spinacea oleracea—
ash absorption from concentrated soil solutions ... 15–25
host of *Pegomyia calyptrata* ... 230
Spinach. See *Spinacia oleracea*.
Spring wheat. See *Triticum aestivum*.
Stakman, E. C., and Levine, M. N. (paper): Effect of Certain Ecological Factors on the Morphology of the Urediniospores of Puccinia graminis ... 43–77
Stakman, E. C., Levine, M. N., and Leach, J. G. (paper): New Biologic Forms of Puccinia graminis ... 103–105
Stemrust. See *Puccinia graminis*.
Strontium—
carbonate, effect on growth of wheat ... 190–191
compounds, effect on plant growth ... 183–194
nitrate, effect on growth of winter wheat ... 188–189
sulphate in corn grown with barium and strontium compounds ... 193
Sulphate—
ammonium, effect on nitrification of acid soils ... 27–42
barium—
effect on plant growth ... 183–194
in corn grown with barium and strontium compounds ... 193
calcium, effect on nitric nitrogen in soil ... 114–135
ferric, effect on nitric nitrogen in soil ... 118–135
iron, effect on germination of Irish potatoes. 298
magnesium, effect on nitric nitrogen in soil ... 115–135
manganous, effect on nitric nitrogen in soil ... 116–135
nicotine, effect on germination of Irish potatoes ... 298
potassium, effect on—
ash content of spinach ... 15–25
nitric nitrogen in soil ... 112–135
sodium—
effect on—
ash content of spinach ... 15–25
nitric nitrate in soil ... 110–135
in spinach ... 17–25
strontium, in corn grown with barium and strontium compounds ... 193

Page

Swanson, C. O., and Tague, E. L. (paper): Determination of Acidity and Titrable Nitrogen in Wheat with the Hydrogen Electrode..... 1-13
Swiss chard. See *Beta vulgaris* var. *cicla*.
Tague, E. L., and Swanson, C. O. (paper): Determination of Acidity and Titrable Nitrogen in Wheat with the Hydrogen Electrode..... 1-13
Temperature, effect on—
angular-leafspot of tobacco..... 226
apple-scald..... 199-200
morphology of *Puccinia graminis*..... 44-68-69
Tenebroides sp., natural enemy of *Chrysobothris tranquebarica*..... 161
Teosinte. See *Euchlaena mexicana*.
Timeromicrus maculatus—
economic importance..... 173
larva..... 173
hibernation..... 172
parasite of *Bruchophagus funebris*..... 172-174
pupa..... 173
relative proportion of sexes..... 173
Tisdale, W. H. (paper): Physoderma Disease of Corn..... 137-154
Tobacco. See *Nicotiana tabacum*.
Toxity of salts to nitrifying organisms..... 129-135
Trichogramma minutum, parasite of *Pegomyia calyptrata*..... 238
Trifolium pratense, attacked by *Bruchophagus funebris*..... 165-174
Triticum—
aestivum—
determination of acidity and titrable nitrogen..... 1-13
effect on nitrification of acid soil..... 27-42
host of *Puccinia graminis*..... 43-77
tolerance of barium carbonate and strontium carbonate..... 187-188, 190-191

Triticum—Continued. Page
compactum, host of *Puccinia graminis tritici-compacti*..... 54-77
dicoccum—
host of *Puccinia graminis tritici-compacti*. 54-77
resistant to *Puccinia graminis*..... 103-105
durum, resistant to *Puccinia graminis*.... 103-105
monococcum, resistaht to *Puccinia graminis*..... 103-105
spp., host of *Puccinia graminis*..... 103-105
True, Rodney H., Black, Otis F., and Kelley, James W. (paper): Ash Absorption by Spinach from Concentrated Soil Solutions... 15-25
Two Species of Pegomyia Mining the Leaves of Dock (paper)..... 229-244
Urbahns, Theodore D. (paper): Life History Observations on Four Recently Described Parasites of Bruchophagus funebris..... 165-174
Urediniospores of *Puccinia graminis*, morphology..... 43-77
Vanilla planifolia, influence of foreign pollen on development of fruits..... 245-252
Vanillon; effect of pollen on fruits of *Vanilla planifolia*..... 245-252
Variations and Mode of Secretion of Milk Solids (paper)..... 79-102
Ventilation, effect on apple-scald.. 205-206, 212-213
Vigna sinensis, tolerance of barium carbonate..... 184-185
Wheat. See *Triticum aestivum*.
Wilkins, R. H., et al. (paper): Effect of Certain Grain Rations on the Growth of the White Leghorn Chick..... 305-312
Winter wheat. See *Triticum aestivum*.
Woodpecker, red-headed. See *Melanerpes erythrocephalus*.
Zea mays—
Physoderma disease..... 137-154
tolerance of barium and strontium compounds..... 191-193

V16 INDEX 1919 XU